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Short Communication

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A New Record of Genus *Heteropternis* Stal 1873 (Orthoptera: Acrididae: Oedipodinae) from Pakistan

Waheed Ali Panhwar[1 *] and Shoaib Ali[2]

[1]*Department of Zoology, Shah Abdul Latif University Khairpur, Mir's Sindh, Pakistan*
[2]*Department of Zoology, Hazara University, Mansehra, Pakistan*

Abstract

Grasshoppers belonging to family Acrididae are vital herbivores that can severely disturb the growth of crops, their nutritional values and production rate. Band-winged grasshoppers belonging to genus *Heteropternis* Stal, 1873 were collected from different localities of Hazara Division during the year of 2016. *Heteropternis respondens* (Walker, 1859) was recorded for the first time from Pakistan. Additionally, photograph along with line drawing is provided for the first time. Finding of present study will contribute to the biodiversity of Pakistan.

Keywords: *Heteropternis resprodens*, New record, Identification, Band-winged, Distribution, Pakistan

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***Corresponding author:**
waheed.panhwar@salu.edu.pk

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1. INTRODUCTION

Grasshoppers belonging to family Acrididae are important herbivores that can intensely disturb the growth of crops [1], their nutritional values and production rate [2]. The subfamily Oedipodinae includes grass hoppers generally known as "winged band grasshoppers" [3]. They are generally found in high meadows, bushes, open forest, agronomic lands and fields [4]. There are 135 reported genera with 285 described species of family Acrididae and 23 genera with 52 species of Oedipodinae from India [5]. Moreover 5 species were recorded from Epacromiimi relating to the genera *Aiolopus* Fieber, 1853, *Heteropternis* Stål, 1873 and *Hilethera* Uvarov, 1923 [4]. The genus *Heteropternis* Stål, 1873 includes 21 species worldwide out of which 10 are reported from Asia [6] and *Heteropternis respondens* (Walker, 1859) is the only species which is reported from India [7].

Periodic faunastical studies on insect fauna had been made from different regions of Pakistan some of which are reported by [8-27]however, they did not record *Heteropternis* Stal, 1873 from this region.

Present study will be the contribution as a first record of genus *Heteropternis* from Pakistan. Which is based on external morphological studies and evaluation of previous literature with description of various species of *Heteropternis*.

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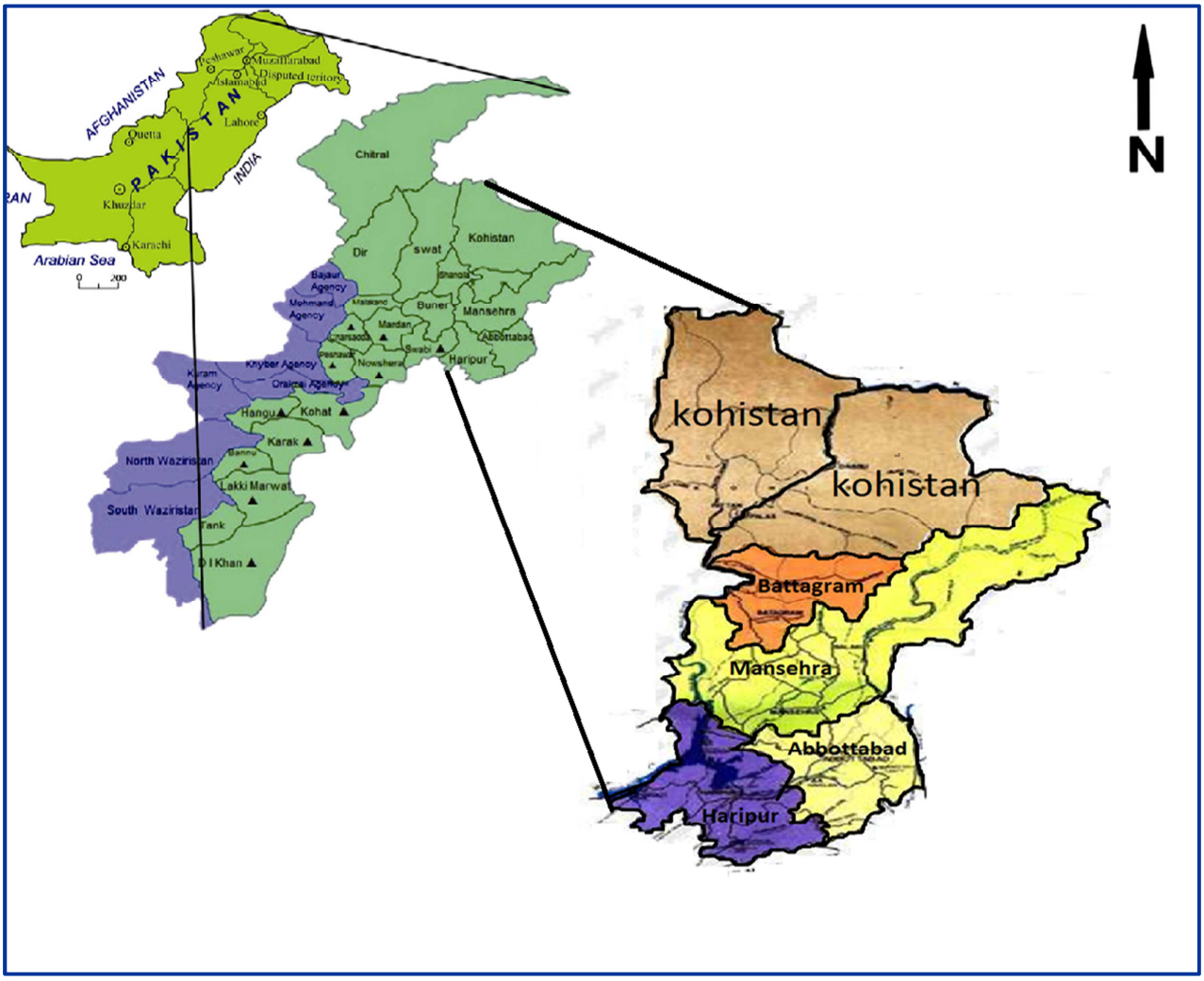
2. MATERIALS AND METHODS

2.1 Location

Specimens were collected from different localities of Hazara division. It is located at 34°30'0" North and 73°15'0" East. Hazara division is bounded by northern areas at north; Azad Kashmir is in its east, Islamabad is situated at the south of Hazara division. Total area of Hazara division is 18,013 km². It is the wettest part of Pakistan. Hazara division has an unusual bimodal rainfall regime with one peak in February and another in July and August. As Hazara is present at high altitude, temperature in Hazara division is cooler than on plains (Map.1).



Map.1. Showing surveyed areas

2.2 Sampling, Killing and Preservation

Samples were collected from August 2016 to March 2017. Specimens were killed using Potassium cyanide into glass jars. The insects were then dried and kept into insect boxes by keeping naphthalene balls in order to prevent from parasitoids and predators.

2.3 Identification

Identification of specimens was carried out using stereoscopic dissecting binocular microscope with the help of keys and description available in literature and on website http://orthoptera.speciesfile.org/

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2.4 Depository

The material is deposited at Insect Museum, Department of Zoology, Shah Abdul Latif University and Hazara University, Mansehra.

2.5 Material examined

Several specimens from Hazara Division.

3. RESULTS AND DISCUSSIONS

3.1 *Taxonomy*

Family Acrididae MacLeay, 1821

Subfamily Oedipodinae Walker, 1871

Tribe Epacromiini Brunner von Wattenwyl, 1893

Genus *Heteropternis* Stål, 1873

Type species: *Acrydium respondens* Walker, 1859

3.2 Genus Diagnosis

Size medium, from slender. Antennae filiform, slightly thickened towards the apex, reaching the hind margin of pronotum or somewhat longer. Head rugulosely punctate. Frontal ridge convex in profile and slightly reclinate, distinctly narrowed at the fastigium, gradually widened towards clypeus; its surface rugosely foveolate, impressed above and a ocellum. Fastigium of vertex sloping and forming a somewhat angulated arch with the frontal ridge, broader than long, narrowed in front, its surface concave, without media keel, separated from the vertex by an incomplete keel or rugosity; foveolae temporales small, indistinct, acutely triangular. Lateral facial carinae angulately rounded. Pronotum short, constricted in the prozona, rugosely punctured, median keel well developed, sharp; transverse sulci indistinct in prozona, third sulcus distinct, though very fine, both on the disc and on the lobes, cutting the median keel before the middle; lateral keel absent or only perceptible in the metazoan as a short oblique rugosity; front angle obtuse, hind angle obtusely angulated with the sides straight; lateral lobes distinctly shorter than high, rugosely punctured, especially in the hinder part, front margin slightly rounded, front angle obtuse, lower margin straight and oblique backwards to beyond the middle, hind angle more or less rectangular or rounded.Sternum with scattered punctures; mesosternal lobes transverse, their interspace as broad as or broader than one of the lobes; metasteral interspace transverse. Elytra extending beyond the hind knees, subcoriaceous in the basal third, hyaline in the rest, stigmatic arch about in the middle; costal area feebly expanded basally gradually narrowing apical and reaching the middle of elytra; scapular area reaching the apical third, coriaceous basally with transverse veinlets in the apical half; discoidal area densely venulated with transverse veinlets, except at the base where they are oore irregular, interalate vein well developed, anterior discoidal area distinctly larger than the posterior one; interlunar area narrower tha discoidal, irregular venulated or with sparsely transverse veilets, with more or less distinct false vein; all areas of the apical half of elytra with transverse veinlets forming elongate cellules.Wings hyaline, coloured basally, without dark transverse band. Hind femora robust, with the upper keel scarcely denticulate. Hind tibiae nearly straight, armed with 10 inner spines and 9 outer spines, without outer apical spine; the inner apical spurs longer than the outer ones, especially the lower inner which is about twince as long as the outer one; all spurs are hooked at their apex, but the lower inner is more abruptly hooked at ape. Hind tarsi short, the first joint subequal to the two other together. Supra anal-plate of the ale triangular with the sides slightly rounded and the apex obturse; n the basal half a sall shallow median sulcus. Cerci cylindrical, apex obtuse and slightly curved, slightly longer than the supra-anal-plate. Subgenital plate short, obtusely conical. Supra-anal-plate of female triangular, narrow, apex subacute, with a shallow impression in the basal half. Cerci short, obtusely conical. Valves of ovipositor short, obtuse. Sub-genital-plate longer as broad, posterior margin rounded.

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3.3 *Heteropternis respondens* Walker 1859

3.4 *Description of species*

General coloration brown, with reddish brown and yellowish marking. Antennae filiform, slightly thickened towards the apex, reaching the hind margin of pronotum or somewhat longer. Antennae yellowish brown, darker apically. Head brown with irregular blackish-spots, dots or stripes. Pronotum brown or greenish brown or reddish, with pale reddish brown dots on each side of the disc, or metazoan and posterior part lateral lobes, reddish or yellowish-brown or greenish, very variable. The lateral lobes of pronotum in the anterior part with two shining dots. Elytra brown with a pale, more or less triangular spot in the basal third and some little spots more; apical part tessellate with hyaline. Wings reddish or yellowish basally with the apex slightly infumated. Hind femora yellowish brown on their outer face with irregular rows of dark spots along the keels; with2-3 irregular black spots above; inner face and lower sulcus reddish, sometimes with dark fasciae or spots. A small preapical projection at the inner spur of the inner side of the hind tibia. Knees with brown and black variegated. Sternum and abdomen yellowish, margins of lobes and sternites darker Hind tibiae red, with a small yellow ring basally, the extreme tip infuscated, spines reddish with black tips, spurs yellowish-brown with black tips Cerci short, obtusely conical. Valves of ovipositor short, obtuse. Sub-genital-plate longer as broad, posterior margin rounded. (Fig1 a-f).

3.5 Morphometry (in mm)

♂: Total body length: 18-19; Length of pronotum: 4-4.5; Length of tegmina: 18-19; Length of femur: 11-12, ♀**:** Total body length:21-23; Length of pronotum: 5; Length of tegmina: 23-24; Length of femur: 13-14.

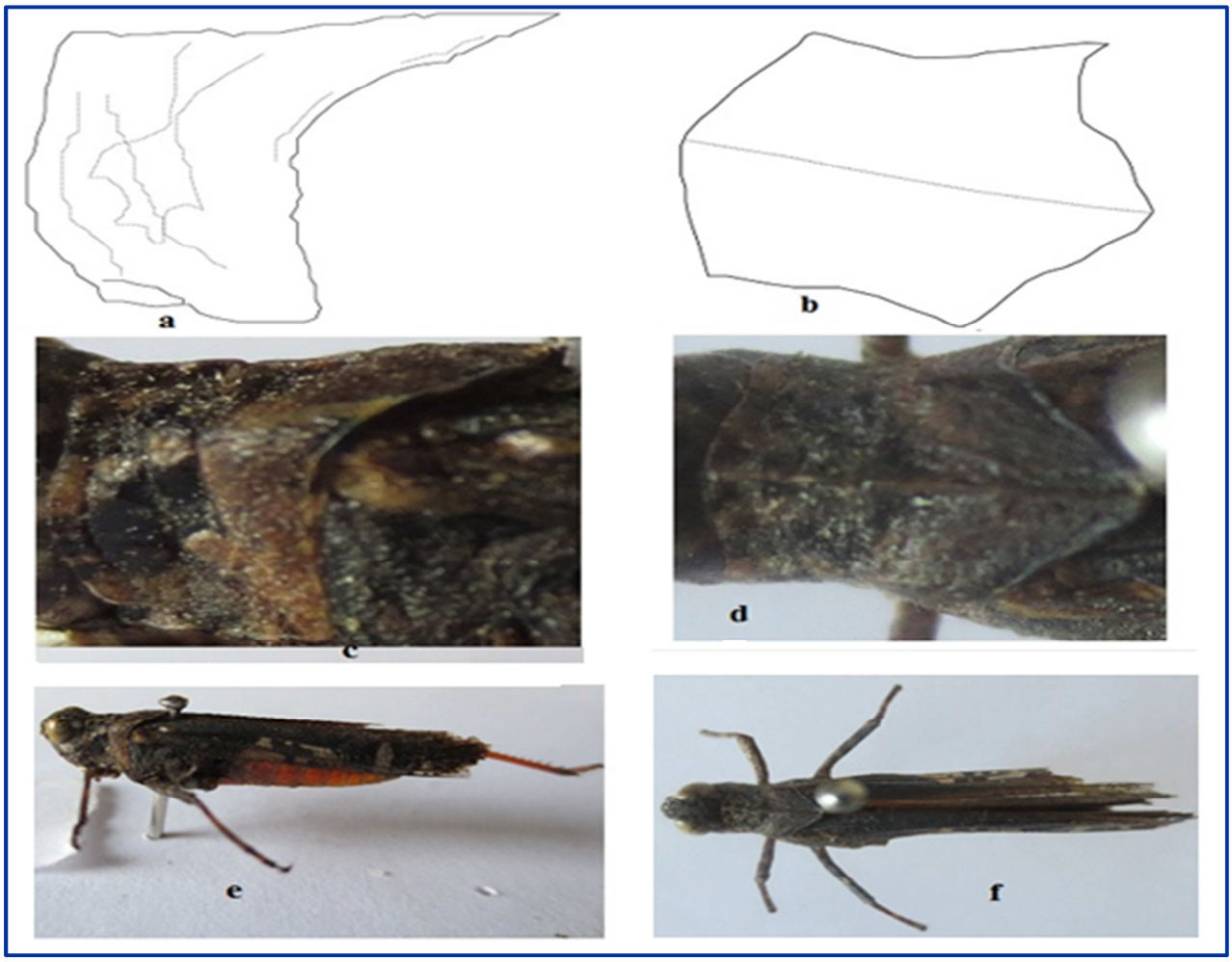

Fig. 1. *Heteropternis respondens* Walker 1859, a, c) Pronotum Lateral view, b, d) Same but Dorsal view, e, f) Habitus Lateral and Dorsal view

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3.6 *Remarks*

Finding of *Heteropternis respondens* (Walker, 1859) constructed as a new record for Pakistan.

3.7 *Distribution*

This species is distributed in Bangladesh, China, Indonesia, Japan, Java, Malacca, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Sumatra, Taiwan, Australia, India and Pakistan.

2. CONCLUSIONS

It is concluded from the present study that Pakistan is more diverse region to be explored for the biodiversity of *Heteropternis* species. Further survey should be carried out to find new records or new species of this genus from this area.

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CONFLICT OF INTEREST

All authors declare no conflict of interest regarding this article.

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